

Conference report

Society of Chemical Industry Electrochemistry Postgraduate Conference 2018



**Electrochemical and Corrosion Technology group
Department of Chemical and Process Engineering
University of Strathclyde**

31st May 2018

Summary

SCI Electrochemistry Postgraduate Conference (EPC) 2018 was the 4th meeting in the series of the SCI EPC hosted by the Electrochemical and Corrosion Technology group of Strathclyde University. The event was sponsored by the Society of Chemical Industry (SCI), the International Society of Electrochemistry (RSE) and the Royal Society of Chemistry (RSC). Additional support was received from Enocell Power Source Innovation, Metrohm, Alvatek and Physical Chemistry Chemical Physics (PCCP).

This one-day conference was designed for postgraduate students and postdoctoral researchers in the UK and Ireland in the field of electrochemistry to present their work in a welcoming environment. The objectives of the conference were to raise awareness of research topics amongst the electrochemistry community, receive feedback from appointed staff or peers and network with other researchers. The event gathered together thirty delegates from various universities such as Aberdeen, Bath, Birmingham, Lancaster, Newcastle, Nottingham, Southampton, St. Andrews and Strathclyde. One of the key features of the conference was the plenary lectures delivered by distinguished speakers in the electrochemistry area as Prof. John Irvine (St. Andrews University), Prof. Paul Christensen (Newcastle University), Prof. Donald Macphee (Aberdeen University - Enocell) and Dr. Lynn Dennany (Strathclyde University). Insightful oral presentations divided in two sessions and poster exhibition took place throughout the event.

The SCI EPC 2018 finalised with the prize ceremony awarded to postgraduate students belonging to electrochemistry research groups of Lancaster and Strathclyde University for best poster and oral presentation.

1. Event Venue

The conference took place at McCance Building of Strathclyde University, Lecture Theatre 301 (3rd Floor), University of Strathclyde, 16 Richmond Street, Glasgow-Scotland, G1 1XQ.



Figure 1. Event venue McCance building at Strathclyde University campus.

2. Event Programme

09:00-9:50	Registration	
9:50-10:00	Welcome	
	Session 1	
10:00-10:40	Keynote speaker: Prof. John Irvine <i>“New materials, structures and concepts for solid oxide cells”</i>	St. Andrews University
10:40-11:00	Invited speaker: Prof. Donald Macphee <i>“How science meets business”</i>	Enocell Power Source Innovation
11:00-11:20	Poster session and coffee break	
11:20-11:40	Xiaomeng Su <i>“Electrodeposition of Copper from Deep Eutectic Solvents by Using Pulse Current”</i>	Strathclyde University
11:40-12:00	Priscila Valverde <i>“Microstructure of Cu deposits from water-containing deep eutectic solvents”</i>	Strathclyde University
12:00-12:20	Hang Xiang <i>“Strategies to develop electrochemical CO₂ reduction reaction-from system to catalyst”</i>	Newcastle University
12:20-13:20	Lunch	
	Session 2	
13:20-14:00	Keynote speaker: Prof. Paul Christensen <i>“Companies, near misses and cock ups: how not to be an academic businessman”</i>	Newcastle University
14:00-14:20	Invited speaker: Dr. Lynn Dennany <i>“Electrochemical approaches to biomedical diagnostics”</i>	Strathclyde University
14:20-15:00	Lab tour	Electrochemical & Corrosion lab
15:00-15:20	Swee Su Lim <i>“Improvement of hydrogen production in microbial electrolysis cell (MEC) by feed controlling in bioanode”</i>	Newcastle University
15:20-15:40	Daniel Smith <i>“The Use of Acid-Doped Protic Ionic Liquid Electrolytes in Fuel Cells – Consequences for the Oxygen Reduction Reaction”</i>	Nottingham University
15:40-16:00	Amelia Langley <i>“The Impact of Dissolved Gas on the Copper Corrosion Mechanism”</i>	Bath University
16:00-16:20	Poster session	
16:20-16:30	Closure. Awards to the best poster and oral presentation	

Figure 2. Programme of the event including keynote speakers, oral presentations, poster exhibition, coffee break, lunch, lab tour and award ceremony.

3. Event account

The conference started acknowledging the SCI, ISE and RSC for sponsoring and supporting the event presented by an organising committee member.

The holding slides provided by the SCI were also introduced to the delegates promoting Electrochem 2018 as one of the upcoming SCI Electrochemical Technology Group Events. The social media of the SCI was marketed and the attendees were invited to become members of the society. Thereafter, Prof. Sudipta Roy, Head of the Department of Chemical and Process Engineering of Strathclyde University delivered an enthusiastic welcome message to the delegates.

SCI Electrochemistry Postgraduate Conference 2018



Thursday 31 May 2018

Organised by SCI's Electrochemical Technology Group and the Electrochemistry and Corrosion Technology Group of the University of Strathclyde



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- Access to a network of scientists and business with a common interest via our technical interest groups
- Raise your profile by presenting at SCI conferences or writing for our journals or magazine
- Access to the SCI Members' Room at SCI's central London location



where science meets business

Figure 3. Holding slides provided the SCI and displayed at the opening ceremony of the event.

The event was divided in two sessions; at the morning session Prof. John Irvine from St. Andrews University delivered the opening plenary lecture titled “*New materials, structures and concepts for solid oxide cells*”, where he discussed key technical challenges that fuel cell researchers needs to address in advancing this technology. His current research aims to grow a finely array of metal nanoparticles on an oxide electrode to yield an increase in the full cell maximum power density. This new electrode structure can deliver good performance opening up possibilities to manufacture highly active nanostructures to reinvigorate solid oxide cells.



Figure 4. Prof. John Irvine from St. Andrews University delivering the plenary lecture at the morning session.

Prof. Donald Macphee was the invited speaker from the University of Aberdeen and Enocell presenting “*How science meets business*” which was an industrial-focused lecture. This talk explained how photoelectrochemistry was applicable to photocatalysis characterisation to open up commercial opportunities for energy generation applications.



Figure 5. Prof. Donald Macphee from St. Andrews University delivering the plenary lecture at the morning session.

The postgraduate oral presentations started with Xiaomeng Su from Strathclyde University explaining his research on “*Pulse Plating Electrodeposition of Cu from Deep Eutectic Solvents*” followed by Priscila Valverde also from Strathclyde University whose presentation explained about “*Microstructure of Cu deposits fabricated from water-containing Deep Eutectic Solvents*”.



Figure 6. PhD student Xiaomeng Su from Strathclyde University.

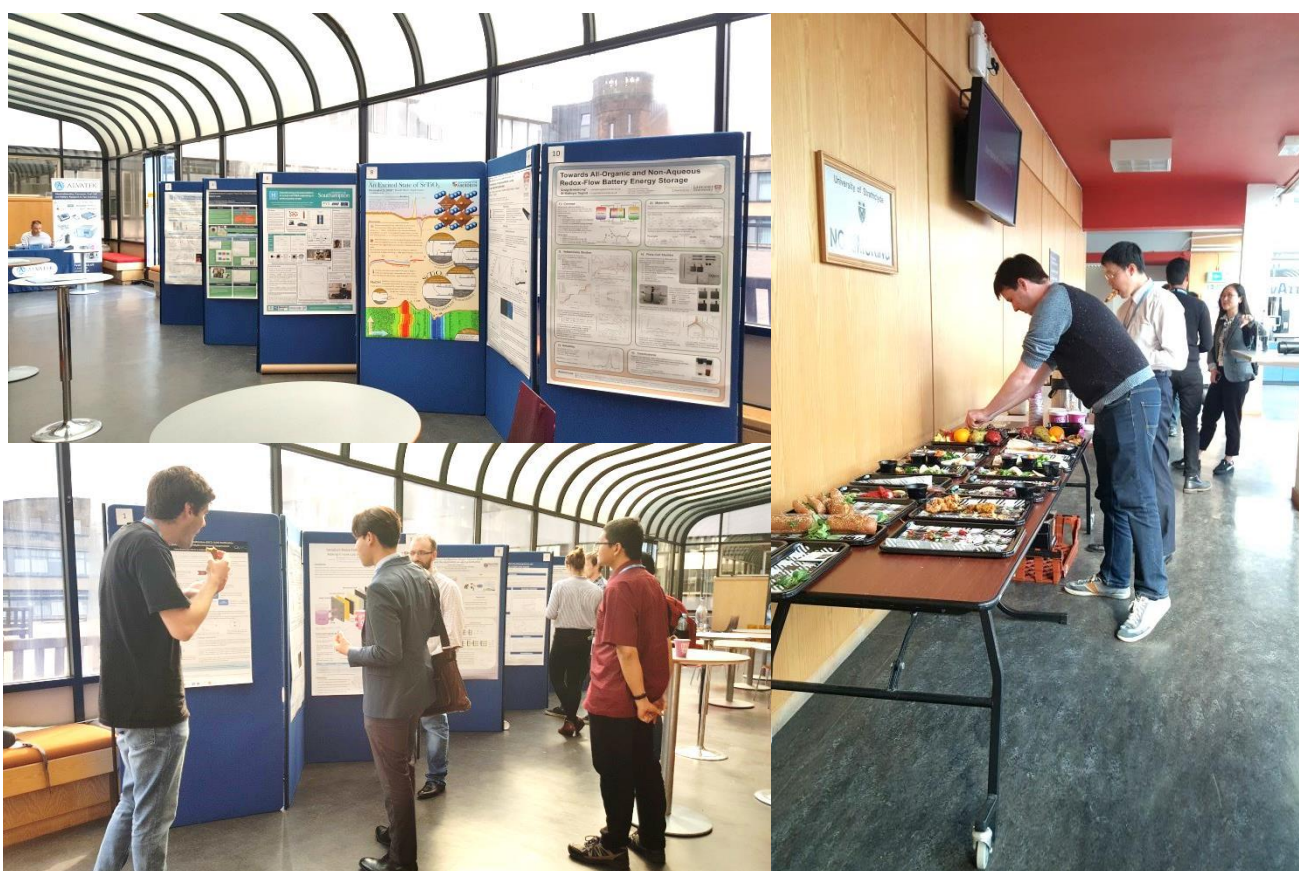


Figure 7. Poster exhibition and lunch break.

The afternoon session commenced with the keynote lecture of Prof. Paul Christensen from Newcastle University. His engaging talk titled “*Companies, near misses and cock ups: how not to be an academic businessman*” was focused on technical and other challenges that he as a researcher had to face when attempting to commercialise intellectual property. Prof. Christensen shared with the audience the lessons learned through his experience. The stage was handed over to Dr. Lynn Dennany the invited speaker from Strathclyde University presenting “*Electrochemical approaches to biomedical diagnostics*”. The audience was engaged with her insightful lecture about sensor development using electrochemiluminescence. One of the main features of the talk was to determine the feasibility of electrochemical techniques for portable testing for illicit drugs.



Figure 8. Plenary lecture of Prof. Paul Christensen from Newcastle University.



Figure 9. Invited speaker Dr. Lynn Dennany from Strathclyde University.

Following the keynote lectures, the delegates were invited to a lab tour to the Electrochemical and Corrosion facility of Strathclyde University. The organising committee members guided the visitors and showcased their research projects and equipment.



Figure 10. Guided tour to the Electrochemical and Corrosion lab of Strathclyde University. Personal protective equipment was provided to the delegates.

The afternoon session continued with the oral presentations of Hang Xiang namely *“Strategies to develop electrochemical CO₂ reduction reaction-from system to catalyst”* and Swee Su Lim with the talk *“Improvement of hydrogen production in microbial electrolysis cell (MEC) by feed controlling in bioanode”*. The students were delegates from Newcastle University.



Figure 11. PhD student Swee Su Lim from Newcastle University.

The oral talks of the postgraduate students finalised with the presentation of Daniel Smith from Nottingham University with his talk namely “*The Use of Acid-Doped Protic Ionic Liquid Electrolytes in Fuel Cells – Consequences for the Oxygen Reduction Reaction*” and Amelia from Bath University presenting “*The Impact of Dissolved Gas on the Copper Corrosion Mechanism*”.



Figure 12. PhD student Daniel Smith from Nottingham University.

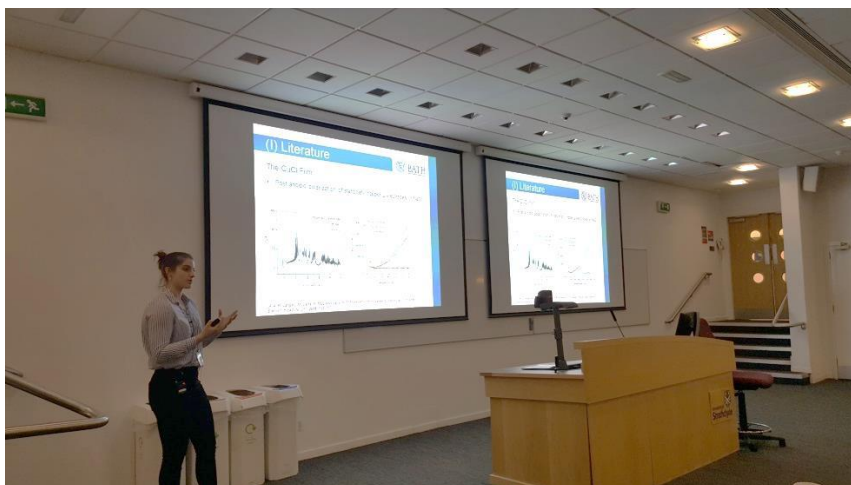


Figure 13. PhD student Amelia Langley from Bath University.

The SCI EPC 2018 finalised with the award ceremony chaired by Prof. Paul Christensen who inspired us to present and share our research with fervour and dedication. The best poster presentation was awarded to Dhruv Trivedi from Lancaster University who received a certificate of achievement, £ 50 gift voucher sponsored by Alvatek and an online subscription to the PCCP journal. The best oral presentation was conferred to Priscila Valverde from Strathclyde University who received two gift vouchers of £ 50 each sponsored by Metrohm and Alvatek as well as one-year SCI membership.



Figure 14. Dhruv Trivedi (Lancaster University) receiving the prize for the best poster from Prof. Paul Christensen.

Acknowledgements

The organising committee would like to warmly thank:

- Society of Chemical Industry for funding this meeting, allowing us to organise it and have a fabulous experience.
- Prof. Sudipta Roy for recommending that the Electrochemical and Corrosion Technology research group of Strathclyde University hosts the SCI conference this year.
- Dr. Todd Green for supporting the event with his advice.
- Jaspria Roda conference executive from SCI for her valuable support and prompt help throughout the organisation of the event.
- The keynote lecturers Prof. John Irvine and Prof. Paul Christensen and invited speakers Prof. Donald Macphee and Dr. Lynn Dennany who committed their time delighting us with their lectures.
- Dr. Guy Denuault the ISE regional representative for the UK for supporting the funding application.
- Thierry Lenzin from the ISE administration and conference office for approving the funding request.
- Dr. Mark Symes secretary of the RSC electrochemistry group, Dr. Neil Rees treasurer of the RSC and Prof. Upul Wijayantha president of the SCI for supporting the SCI EPC 2018 meeting by approving the funding request.
- Prof. Carlos Ponce de Leon Editor-in-Chief of the Electrochemistry Newsletter for publicising the SCI EPC 2018 in the newsletter.
- Dr. Luis Arenas for providing key information to the organising committee.

Priscila Valverde Armas
Xiaomeng Su
Jonathan Boualavong
Organising committee of SCI EPC 2018